



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/645,386	08/21/2003	Gerold Kloos	ZAHFRI P535US	8081
20210	7590	03/22/2005	EXAMINER	
DAVIS & BUJOLD, P.L.L.C. FOURTH FLOOR 500 N. COMMERCIAL STREET MANCHESTER, NH 03101-1151			SCHINDLER, DAVID M	
			ART UNIT	PAPER NUMBER
			2862	

DATE MAILED: 03/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/645,386	KLOOS ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	David Schindler	2862	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 8/21/2003.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 16-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 16,17,20-23 and 26-30 is/are rejected.
- 7) Claim(s) 18, 19, 24, and 25 is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 21 August 2003 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    - Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    - Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date: _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>8/21/2003</u> | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|  | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Oath/Declaration***

1. The full name of each inventor (family name and at least one given name together with any initial) has not been set forth.

The second inventor's name is not complete and is listed as "R bert Stoll" instead of "Robert Stoll".

### ***Drawings***

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, 1) the evaluation device of Claims 16, 17, 18, 22, 24, 26, and 27, 2) the specific characteristic lines of Claim 24, and 3) the sensor-specific characteristic lines of Claim 25 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New

Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

3. Claims 16-21, 24-26, and 28-30 are objected to because of the following informalities:

#### **As to Claims 16, 17, 18, 19, 20, 21, 24, 26, and 28-30,**

Claims should not contain reference numbers and letters from the drawings.

#### **As to Claim 16,**

It is not clear how the speed of the measuring body is determined from an actual output of the speed sensor depending on an actual output of the distance sensor in an evaluation device as stated on lines 11-13.

#### **As to Claim 17,**

The term "the sensor" on line 2 lacks antecedent basis. Is this the distance sensor or the speed sensor?

The phrase "are respectively function" on line 3 is awkward and it is recommended to change this phrase to "are respectively a function."

The phrase "the actual speed" on line 6 lacks antecedent basis.

#### **As to Claim 18,**

The term "the sensor" on line 2 lacks antecedent basis. Is this the distance

sensor or the speed sensor?

The phrase "specific to the measuring body of the speed sensor are" on line 3 is unclear. It is unclear how the measuring body can be "of the speed sensor" and it is recommended to instead state "specific to the measuring body are."

The phrase "speed sensor" on line 4 is awkward and it is recommended to change this phrase to "the speed sensor."

The phrase "measuring body" on lines 4-5 is awkward and it is recommended to change this phrase to "the measuring body."

The phrase "the "zero" value" on line 7 lacks antecedent basis.

The phrase "the actual speed" on line 7 lacks antecedent basis.

As to Claim 19,

The phrase "the air gap decrease" on line 2 lacks antecedent basis.

The phrase "the upper and lower release thresholds" on line 2 lacks antecedent basis.

The phrase "the maximum and minimum speed signal amplitudes" on lines 2-3 lacks antecedent basis.

As to Claim 20,

It is unclear what is "a distance measuring surface" as stated on lines 2-3.

It is unclear how "the distance sensor scans, without contact, a contour of the measuring body."

As to Claim 24,

The phrase "the maximum and minimum speed amplitudes" on lines 2-3 lacks antecedent basis.

The phrase "specific characteristic lines" on line 3 is unclear as it is not clear what constitutes "specific characteristic lines."

As to Claim 25,

The phrase "the sensor-specific characteristic lines" on lines 1-2 lacks antecedent basis and is also unclear. It is unclear what is a sensor-specific characteristic line.

As to Claim 26,

The phrase "the sensor housing" on lines 2-3 lacks antecedent basis.

Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 16, 20, 21, and 28-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wallrafen (6,181,127) in view of Andersen (5,432,442).

As to Claim 16,

Wallrafen discloses at least one stationary speed sensor (3) for detecting speed

of a measuring body (1) rotating relative to the speed sensor in which magnetic discontinuities are provided on a periphery of the measuring body (Figure 1), and the speed sensor located at a defined distance from the measuring body ((Figure 1) and (Column 3, Lines 21-27)), reacts to a direction of movement of the discontinuities situated of the measuring body as the measuring body is moved past the speed sensor ((Figure 1) and (Column 3, Lines 29-33)), wherein the speed measuring system has a separate distance sensor (3') for determining an actual distance between the speed sensor and the measuring body (Column 4, Lines 16-23) and the speed of the measuring body (1) is determined from an actual output signal of the speed sensor depending on an actual output signal of the distance sensor in an evaluation device (microcomputer) of the speed measuring system ((Column 4, Lines 16-23) and (Figure 1) and (Column 4, Lines 1-15)).

Wallrafen does not explicitly disclose a separate distance sensor for determining an actual change in distance between the speed sensor and the measuring body.

Andersen discloses a separate distance sensor (20) for determining an actual change in distance between the speed sensor and the measuring body ((Column 3, Lines 7-8) and (Column 3, Lines 35-37) and (Figure 1)).

It would have been obvious at the time of the invention to modify Wallrafen to include a separate distance sensor for determining an actual change in distance between the speed sensor and the measuring body as taught by Andersen in order to provide a variety of means for indicating that the air gap measurement may be inaccurate (Column 6, Lines 8-11).

It is noted that the speed sensor (3) in Wallrafen depends on the output of the distance sensor (3') in that both signals are needed and used to create a signal sign( $/\omega$ ). This signal is used to create signals that are fed to a microcomputer (evaluation device) which determines the speed.

As to Claim 20,

Wallrafen discloses the distance sensor (3') scans, without contact, a contour of the measuring body as a distance measuring surface ((Figure 1) and (Column 4, Lines 1-23)).

As to Claim 21,

Wallrafen discloses wherein the speed sensor (3) and the distance sensor (3') are situated in a common housing (2) (Figure 1).

As to Claim 28,

Wallrafen discloses the distance sensor (3') works according to an inductive measuring principle (Column 3, Lines 29-35).

As to Claim 29,

Wallrafen discloses the speed sensor (3) works according to a measuring principle in which a speed signal amplitude depends on the distance between the speed sensor and the measuring body (Column 3, Lines 29-35).

As to Claim 30,

Wallrafen discloses the distance sensor works according to an inductive measuring principle (Column 3, Lines 29-35).

6. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wallrafen (6,181,127) in view of Andersen (5,432,442) and in further view of Teramae et al. (5,539,308).

Wallrafen in view of Andersen disclose as explained above.

Wallrafen in view of Andersen does not disclose release thresholds of the speed sensor specific to the sensor and/or to the measuring body are respectively function of the actual distance between the speed sensor and the measuring body and a function of an actual change in distance between the speed sensor and the measuring body, the evaluation device of the speed measuring system issues a speed unequal to a "zero" value, as the actual speed of the measuring body, only when an actual speed signal amplitude of the speed sensor is greater than an upper release threshold or smaller than a lower release threshold.

Teramae et al. discloses release thresholds (V.sub.TH1+ to V.sub.TH3+ and V.sub. TH1- to V.sub.TH3-) of the speed sensor (11A) specific to the sensor (Column 6, Lines 7-10) are respectively function of the actual distance between the speed sensor and the measuring body (1) (Column 6, Lines 7-10) and a function of an actual change in distance between the speed sensor and the measuring body ( $\Delta V(1)$ ,  $\Delta V(2)$ ,  $\Delta V(3)$ ) and (Figure 5)), the evaluation device ((device) / (Column 4, Lines 13-14)) of the speed measuring system issues a speed unequal to a "zero" value, as the actual speed of the measuring body, only when an actual speed signal amplitude of the speed sensor is greater than an upper release threshold or smaller than a lower release threshold ((Column 5, Lines 46-67) and (Column 6, Lines 1-6)).

It would have been obvious at the time of the invention to modify Wallrafen to include release thresholds of the speed sensor specific to the sensor are respectively function of the actual distance between the speed sensor and the measuring body and a function of an actual change in distance between the speed sensor and the measuring body the evaluation device of the speed measuring system issues a speed unequal to a "zero" value, as the actual speed of the measuring body, only when an actual speed signal amplitude of the speed sensor is greater than an upper release threshold or smaller than a lower release threshold as taught by Teramae et al. in order to have reliable measurement of the speed of the wheel (Column 6, Lines 5-6).

7. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wallrafen (6,181,127) in view of Andersen (5,432,442) and in further view of Turner (2003/0001563).

Wallrafen in view of Andersen discloses as explained above.

Wallrafen in view of Andersen does not disclose the speed measuring system has two speed sensors disposed immediately adjacent one another which detect the one of the electric and magnetic discontinuities of the measuring body independently of one another, and the evaluation device takes into account a phase offset between both speed sensor signals so that the speed measuring system delivers, as an output, at least one of the speed, a direction of rotation and an angularity of the measuring body.

Turner discloses the speed measuring system has two speed sensors ((24) and (26)) disposed immediately adjacent one another (Figure 1) which detect the magnetic

discontinuities of the measuring body (16) independently of one another ((Figure 1) and (Page 2, Right Column, Paragraph [0023], Lines 1-11)), and the evaluation device (30) takes into account a phase offset between both speed sensor signals so that the speed measuring system delivers, as an output, a direction of rotation of the measuring body (Page 2, Right Column, Paragraph [0023], Lines 1-17).

It would have been obvious at the time of the invention to modify Wallrafen in view of Andersen to include the speed measuring system has two speed sensors disposed immediately adjacent one another which detect the magnetic discontinuities of the measuring body independently of one another, and the evaluation device takes into account a phase offset between both speed sensor signals so that the speed measuring system delivers, as an output a direction of rotation of the measuring body as taught by Turner in order to produce a rotational velocity and direction signal protocol that is easy to read (Page 3, Left Column, Last two lines of the top paragraph).

8. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wallrafen (W1) (6,181,127) in view of Andersen (5,432,442) and Turner (2003/0001563) and in further view of Wallrafen (W2) (6,417,662).

W1 in view of Andersen and Turner discloses a distance sensor (3') and a speed sensor (3) in a common housing (2).

W1 in view of Andersen and Turner does not disclose both speed sensors and a distance sensor are situated in a common housing.

W2 discloses two speed sensors ((5a) and (5b)) situated in a common housing (Figure 15c).

It would have been obvious at the time of the invention to modify W1 in view of Andersen and Turner to include both speed sensors situated in a common housing as taught by W2 in order to maintain the distance between the sensors accurately (Column 6, Lines 47-55).

It is noted that as W1 in view of Andersen and Turner already discloses the distance sensor and speed sensor in a common housing, it would have been obvious to include an addition speed sensor in the same housing given the combination of W1 in view of Andersen and Turner and in further view of W2 in order to maintain the distance between the sensors accurately.

9. Claims 26 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wallrafen (W1) (6,181,127) in view of Andersen (5,432,442) and in further view of Wallrafen (W2) (6,417,662).

As to Claim 26,

W1 in view of Andersen discloses as explained above.

W1 in view of Andersen and does not disclose the evaluation device of the speed measuring system is integrated in the sensor housing.

W2 discloses the evaluation device (12) of the speed measuring system is integrated in the sensor housing ((Figure 15a) and (Column 6, Lines 47-50)).

It would have been obvious at the time of the invention to modify W1 in view of Andersen to include the evaluation device of the speed measuring system integrated in the sensor housing as taught by W2 in order to reduce the amount of wire necessary to connect the evaluation device to the sensors.

As to Claim 27,

W1 in view of Andersen does not disclose the evaluation device of the speed measuring system is situated in a separate control unit.

W2 discloses the evaluation device (12) of the speed measuring system is integrated in the sensor housing ((Figure 15a) and (Column 6, Lines 47-50)).

It is noted that situating the evaluation device in a separate control unit would be making separable that which is integrated (MPEP 2144.04). The motivation at the time of the invention to do so would have been to help prevent interference between the sensors and the evaluation device.

10 *DS*

**Conclusion**

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Pat. No. 5,977,764 to Riedle et al. which discloses determining the speed and direction of a rotating shaft.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Schindler whose telephone number is (571) 272-2112. The examiner can normally be reached on M-F (8:00 - 5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Lefkowitz can be reached on (571) 272-2180. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

11 *DS*  
David Schindler

*Jay Patidar*  
JAY PATIDAR  
PRIMARY EXAMINER